

CLAIMS

1. A method of communications of traffic with different characteristics wherein traffic from at least two information sources is divided into two or more categories including a first and a second category for transfer with different characteristics, the method characterized in that the traffic for the transfer with different characteristics are transmitted on physically wholly or partially separated channels.
2. The method according to claim 1 characterized in that the different characteristics of transfer comprises different time scale of power control adjustments.
3. The method according to claim 2 characterized in that there is a difference in time scale between at least two categories that is at least one order of magnitude.
4. The method according to any of claims 1-3 characterized in that the first category of communications is transmitted with stationary or quasi-stationary transmission power level.
5. The method according to claim 4 characterized in that the quasi-stationary transmission power level is varying slower than the lowest speed of communications variations of the traffic of the first category.
6. The method according to any of claims 1-3 characterized in that the first category of communications is transmitted with channel adaptive data rate control.

7. The method according to any of claims 1-3 c h a r -
a c t e r i z e d i n that at least one of the categories
of communications comprises opportunistic communications.
8. The method according to any of claims 1-3 c h a r -
5 a c t e r i z e d i n that the second category of commu-
nications is transmitted with power level adapted to coun-
teract fading.
9. The method according to any of claims 1-3 c h a r -
a c t e r i z e d i n that at least one of the categories
10 of communications comprises conventional communications.
10. The method according to claim 9 c h a r a c t e r -
i z e d i n that the conventional communications comprise
circuit switched communications.
11. The method according to claim 10 c h a r a c t e r -
15 i z e d i n that the circuit switched communications com-
prise voice communications.
12. The method according to claim 9 c h a r a c t e r -
i z e d i n that the conventional communications comprise
communications with real-time requirements.
- 20 13. The method according to any of claims 1-11 c h a r -
a c t e r i z e d i n that the communications are sepa-
rated in one-dimensional domain.
14. The method according to claim 13 c h a r a c t e r -
i z e d i n that the one-dimensional domain is time do-
25 main.
15. The method according to claim 13 c h a r a c t e r -
i z e d i n that the one-dimensional domain is frequency
domain.

16. The method according to claim 13 c h a r a c t e r -
i z e d i n that the one-dimensional domain is code do-
main.

17. The method according to any of claims 1-11 c h a r -
5 a c t e r i z e d i n that the communications are sepa-
rated in two-dimensional domain.

18. The method according to claim 17 c h a r a c t e r -
i z e d i n that the two-dimensional domain is time-fre-
quency domain.

10 19. The method according to claim 17 c h a r a c t e r -
i z e d i n that the two-dimensional domain is time-code
domain.

20. The method according to claim 17 c h a r a c t e r -
i z e d i n that the two-dimensional domain is frequency-
15 code domain.

21. The method according to any of claim 1-11 c h a r -
a c t e r i z e d i n that the communications are sepa-
rated in more than two-dimensional domain.

22. The method according to claim 21 c h a r a c t e r -
20 i z e d i n that the more than two-dimensional domain in-
cludes time, frequency or code domain.

23. The method according to any of claims 1-22 c h a r -
a c t e r i z e d i n that when applied to different
cells of a cellular radio communications system, neighbor-
25 ing cells transmit on channels of separation minimizing in-
terference between the neighboring cells and the differ-
ently characterized communications.

24. The method according to claim 23 c h a r a c t e r -
i z e d i n that the separation minimizes number of time

slots, frequency slots or time-frequency slots of communications with different characteristics in the different cells.

25. The method according to claim 23 characterized in that the separation maximizes signal to interference ratio or carrier to interference ratio of time slots, frequency slots or time-frequency slots, if any, of communications with different characteristics in the different cells.

10 26. A radio communications equipment of communications with different characteristics, the equipment characterized by processing circuitry allocating traffic transmissions of the differently characterized communications to physically wholly or partially separated
15 channels.

27. The radio communications equipment according to claim 26 characterized in that the different characteristics of transfer comprises different time scale of power control adjustments.

20 28. The radio communications equipment according to claim 27 characterized in that there is a difference in time scale between at least two categories that is at least one order of magnitude.

29. The radio communications system according to any of
25 claims 26-28 characterized in that a first category of communications is transmitted with stationary or quasi-stationary transmission power level.

30. The radio communications system according to claim 29 characterized in that the quasi-stationary
30 transmission power level is varying slower than the lowest

speed of communications variations of the traffic of the first category.

31. The radio communications equipment according to any of claims 26-28 characterized by the processing circuitry comprising channel adaptive data rate control means controlling transmissions of the first category of communications.

32. The radio communications equipment according to claim 26 characterized in that at least one of the communications is opportunistic communications.

33. The method according to any of claims 26-28 characterized in that a second category of communications is transmitted with power level adapted to counteract fading.

34. The radio communications equipment according to claim 32 characterized in that at least one of the communications is conventional communications.

35. The radio communications equipment according to claim 34 characterized in that the conventional communications comprise circuit switched communications.

36. The radio communications equipment according to claim 35 characterized in that the circuit switched communications comprise voice communications.

37. The radio communications equipment according to claim 34 characterized in that the conventional communications comprise communications with real-time requirements.

38. The radio communications equipment according to any of claims 26-36 characterized by the process-

ing circuitry separating communications in one-dimensional domain.

39. The radio communications equipment according to claim
38 characterized in that the one-dimen-
5 sional domain is time domain.

40. The radio communications equipment according to claim
38 characterized in that the one-dimen-
sional domain is frequency domain.

41. The radio communications equipment according to claim
10 38 characterized in that the one-dimen-
sional domain is code domain.

42. The radio communications equipment according to any of
claims 26-36 characterized by the process-
ing circuitry separating communications in two-dimensional
15 domain.

43. The radio communications equipment according to claim
42 characterized in that the two-dimen-
sional domain is time-frequency domain.

44. The radio communications equipment according to claim
20 42 characterized in that the two-dimen-
sional domain is time-code domain.

45. The radio communications equipment according to claim
42 characterized in that the two-dimen-
sional domain is frequency-code domain.

25 46. The radio communications equipment according to any of
claim 26-36 characterized by the processing
circuitry separating communications in more than two-dimen-
sional domain.

47. The radio communications equipment according to claim 21 characterized in that the more than two-dimensional domain includes time, frequency or code domain.

48. A cellular radio communications system comprising two or more cells and radio communications equipment according to any of claims 26-47, the system characterized by processing circuitry allocating traffic of different characteristics of different cells by which allocation interference between differently characterized communications of neighboring cells is minimized.

49. The radio communications system according to claim 48 characterized by the processing circuitry minimizing number of time slots, frequency slots or time-frequency slots of communications with different characteristics in the different cells.

50. The radio communications system according to claim 48 characterized by the processing circuitry maximizing signal to interference ratio or carrier to interference ratio of time slots, frequency slots or time-frequency slots, if any, of communications with different characteristics in the different cells.

51. A communications system characterized by means for carrying out the method in any of claims 1-25.